

### REMARKS

The Office Action dated March 28, 2006 has been received and carefully considered. Claims 1-3, 5-12, 14-21, and 26-29 are pending in the application. Applicants believe that the application is now in condition for allowance and notice thereof is respectfully requested.

### ALLOWABLE SUBJECT MATTER

Applicants are grateful for the Examiner's allowance of claims 19, 20, and 26-29, and the Examiner's indication that dependent claims 3 and 12 would be allowable if rewritten into independent form including all of the limitations of the base claim and any intervening claims.

### REJECTIONS UNDER 35 U.S.C. §103(a)

I. Claims 1, 6-10, 15-18, and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,442,557 to Buteau et al. ("Buteau"), in view of U.S. Patent No. 5,918,232 to Pouschine *et al.* ("Pouschine"), in further view of U.S. Patent No. 5,584,024 to Shwartz ("Shwartz"). Applicants respectfully traverse. Applicants respectfully submit that the cited references, alone or in combination, do not disclose or suggest all the elements recited in the claimed invention.

#### A. Response to the Rejection of Claim 1

On pages 3-5, the Action rejects claim 1, which recites:

A computer-implemented system for retrieval and processing of a data set from one or more data sources comprising:

a query structure assembly module for defining a query structure based upon a plurality of query assembly rules **and** a desired data set, the query assembly rules being used by the query structure assembly module to evaluate the desired data set;

a syntax assembly module for defining at least one query language statement based upon the defined query structure;

a process optimization module for evaluating processing options based upon a database schema associated with the data source, the process optimization module

including an intermediate data processing method module for evaluating a plurality of methods for generating intermediate data sets within the data source(s); and  
whereby at least one query language statement is assembled and run against the data source(s) to return the desired data result set.  
(Emphasis added.)

Applicants respectfully traverse the rejection as the Action fails to establish a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest **ALL** the claim limitations. See M.P.E.P. § 2143.

For at least the following reasons, the Action does not establish a *prima facie* case of obviousness to reject claim 1 based on the combined teachings Buteau, Pouschine, and Shwartz.

First, none of Buteau, Pouschine, and Shwartz, alone or in combination, disclose or suggest “a query structure assembly module for defining a query structure based upon a plurality of query assembly rules **and** a desired data set,” and “a syntax assembly module for defining at least one query language statement based upon the defined query structure” (emphasis added), as recited in claim 1. The instant application provides an exemplary embodiment of the claimed query structure assembly module. See at least, for example, FIG. 3 and page 13, ll. 1-25. In this exemplary embodiment, the application discloses a query structure assembly module 312 that generates a query structure, such as, for example, a logic tree identifying data retrieval and processing to be done against a data source 310 and processing to be done by an analytical engine 306.

In the present application, “query assembly rules” are typically rules for evaluating the desired data set and for generating an optimized query execution plan. See at least, for example, page 13, ll. 14-17. The query assembly rules may embody functions of the base table selection module 318 (see at least, for example, page 15, ll. 11-13), the intermediate table selection module 320 (see at least, for example, page 15, line 27 to page 16, line 5), the intermediate table method module 322 (see at least, for example, page 16, ll. 22-23), and/or the join path selection module 324 (see at least, for example, page 17, ll. 22-23), for example. That is, the query assembly rules may comprise a number of logical rules, dependencies and conditions which are utilized by the query structure assembly module 312 during initial parsing of the desired data set parameters and assembly of the query structure. See at least, for example, page 15, ll. 9-15. In other words, the query assemble rules are rules that govern the query structure assembly process.

On page 3 of the rejection, the Action parses the language of the claimed query structure assembly module and only rejects “a query structure assembly module based on query rules” over Buteau, specifically the Action cites FIG. 9 and cites the “associated texts, i.e., the ‘WHERE’ command would be one of the rules.”

Applicants note that the Action does not identify whether Buteau discloses a query structure assembly module for defining a “query structure” based on a “desired data set” in the above quoted passage on page 3 of the Action. Applicants note that the burden is on the Office to establish a *prima facie* case of obviousness. See M.P.E.P. § 2142 (stating that the “examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness”). Based on the Action’s failure to address all of the elements recited in claim 1, the Office has not met its burden of establishing that Buteau discloses or suggests the claimed “query structure” or the “desired data set” associated with the query structure assembly module, as recited in claim 1.

The Action does not rely on Pouschine or Shwartz as disclosing a query structure assembly module associated with these claimed features. Thus, the Action has not met its burden of establishing a *prima facie* case of obviousness to reject 1 since the Action has not addressed “a query structure assembly module for defining a query structure based upon a plurality of query assembly rules and a desired data set” (emphasis added), as recited in claim 1. Any final rejection of claim 1 would clearly be improper since the claimed “query structure” and the “desired data set” associated with the query structure assembly module recited in claim 1 have not received a first rejection.

Applicants note that the Office decided to reopen prosecution and send out this Action rather than proceeding with an appeal. Applicants have made a bona fide attempt to respond to each of the five received Office Actions. Applicants earnestly desire to be fully responsive to the Action; however, this is difficult when the Action clearly fails to explicitly address two claim elements in the first two lines after the word “comprising” in claim 1.

Applicants request that, if the Office disagrees with any of the below comments and issues another rejection, the next Action clearly address each element of claim 1, and indicate which portion of Buteau the Office believes discloses each claim element. Specifically, Applicants respectfully request that the next Action *explicitly* identify which elements in FIG. 9 of Buteau the Office believes discloses the claimed: (1) query structure assembly module; (2) query structure; (3) plurality of query assembly rules; (4) desired data set; (5) syntax assembly module; (6) process optimization module; (7) processing options; (8) database schema; and (9) data source. Applicants note that under 37 C.F.R. § 1.104(c)(2), in a rejection, the “pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified” (emphasis added). Applicants request this mapping of FIG. 9 of Buteau to the elements recited

in claim 1 to clearly explain the pertinence of the reference, as required under 37 C.F.R. § 1.104(c)(2). Applicants believe that this mapping will illustrate the differences between claim 1 and Buteau, and facilitate the goal of having a compact prosecution for this application.

In an earnest attempt to expedite prosecution, Applicants will attempt to respond to the Action and to Buteau. Applicants submit that column 22 and FIG. 9 including the “WHERE” command and the “associated text” of Buteau cited on page 3 of the Action do not disclose all of the claim features of the “query structure assembly module” and the “syntax assembly module” recited in claim 1. Buteau discloses that:

[t]he information retrieval tools by the database program such as Microsoft Access are called queries. This application program, like most others, uses an industry standard query language, called SQL (Structured Query Language), which defines the syntax and interpretation of the queries which can be used by applications to store, retrieve and manipulate data in a database system. For the purposes of this description it is assumed that that queries are in standard SQL. A sample query is shown and the links between tables in FIG. 9. The sample query asks for all processes relating to customer data. In this example, customer data is used to bill customers and develop IR & D proposals and is used at the Lexington and McLean locations as illustrated in FIG. 10. See Buteau, col. 22, ll. 33-45; emphasis added.

Thus, FIG. 9 depicts a sample query in standard SQL. FIG. 9 of Buteau depicts five SQL commands, which are: (1) SELECT DISTINCT; (2) FROM; (3) WHERE; (4) AND; and (5) ORDER BY. The text in FIG. 9 after each of the SQL commands, which appears to be the “associated text” of FIG. 9 referred to on page 3 of the Action, is used by the SQL commands in retrieving data from a database. The SELECT DISTINCT command returns different values (i.e., non-repetitive data) from columns in a table of a database. The FROM command identifies which table(s) in the database to access for retrieving the data requested in the query. The WHERE command identifies which rows are to be retrieved from a table. The AND command is a Boolean operator that puts conditions on what data is retrieved by the WHERE command. The ORDER BY command is used to identify which columns to use for sorting the resulting

data. Thus, the Action appears to be arguing that the WHERE command in FIG. 9 of Buteau is one of several commands used by a first module along with a desired data set to define a query structure, and that FIG. 9 also discloses a second module for defining at least one query language statement based upon the query structure defined by the first module. Applicants respectfully disagree.

FIG. 9 of Buteau does not support the allegations made in the Action. Column 22 and FIG. 9 Buteau do not disclose a module that defines a query structure based on a WHERE command. The cited figure and column of Buteau do not use any similar language, such as “defining” a “query structure,” or “module.” Instead, FIG. 9 of Buteau discloses a sample query in a Microsoft Access GUI having a WHERE command, which is a conventional SQL command that can be used to identify which rows are to be retrieved from a table in a database.

Buteau does not, however, disclose or suggest defining query language statements based on a query structure, which is defined based on a SQL WHERE command. It is unclear how an SQL WHERE command could be reasonably construed as defining a query structure that is used to define query language statements, particularly in light of the comments made in the Action. Specifically, the Action describes the SQL WHERE command as being “one of the [plurality of query assembly] rules.” See Action page 3. Thus, based on the WHERE command, the Action argues that Buteau discloses a module that defines a query structure, and a second module defines a query language statement based on the query structure. Applicants respectfully disagree.

Buteau does not disclose using the SQL WHERE command to define a query structure that is used to define query language statements. For example, Buteau does not disclose that the WHERE command is used by a first module to define a query structure, and that a second

module then uses the defined query structure to define a SQL ORDER BY command.

Applicants request clarification as to what “query language statement” Buteau defines based on the SQL WHERE command if the Office believes otherwise. Thus, FIG. 9 of Buteau does not disclose defining a “query structure” based on a WHERE command.

Moreover, the query structure of claim 1 is defined based on **both** a plurality of query assembly rules **and** a desired data set. The Action only cites the WHERE command of Buteau as being “one of the [plurality of query assembly] rules” (see Action, page 3), but does not indicate what other “rules” Buteau discloses that would teach the claimed “plurality of query assembly rules.” The Action also does not identify how FIG. 9 of Buteau defines a query structure based on **both** multiple SQL commands **and** a desired data set, and then uses this defined query structure to define query language statements.

Applicants submit that Buteau does not define any query structure based on both multiple query assembly rules and a desired data set. For example, Buteau does not disclose forming a query structure based on a SQL SELECT DISTINCT command, a SQL WHERE command, and a desired data set, and then using the defined query structure to define the ORDER BY command. Hence, the Action has not shown that Buteau discloses or suggests “a query structure assembly module for defining a query structure based upon a plurality of query assembly rules **and** a desired data set” and “a syntax assembly module for defining at least one query language statement based upon the defined query structure,” as recited in claim 1. The Action does not rely on either Pouschine or Schwartz as disclosing these claim features. Thus, the Action has not shown that Buteau, Pouschine, or Schwartz, alone or in combination, disclose or suggest all of the claim features to establish a *prima facie* case of obviousness to reject claim 1 under 35 U.S.C. § 103.

Second, none of Buteau, Pouschine, and Shwartz disclose or suggest a “computer-implemented system” comprising “a query structure assembly module” and a “syntax module,” as recited in claim 1. To reject these modules, the Action cites FIG. 9 of Buteau, which discloses a “sample query and the links between tables.” See Buteau, col. 22, ll. 40-42. Applicants respectfully disagree that FIG. 9 of Buteau discloses “a query structure assembly module” and a “syntax module.”

FIG. 9 of Buteau depicts a Microsoft Access graphical user interface (GUI). See FIG. 9. FIG. 9 does not, however, disclose two modules in a computer-implemented system. Rather, FIG. 9 only discloses a GUI. Moreover, FIG. 9 of Buteau does not disclose a first module that defines a query structure, which a second module uses to define a query language statement. Applicants request clarification as to what the Office considers a “module” in FIG. 9 of Buteau should the Office believe otherwise. Thus, Buteau does not disclose a “computer-implemented system” comprising “a query structure assembly module” and a “syntax module,” as recited in claim 1. The Action does not rely on either Pouschine or Shwartz as disclosing these claim features. Thus, the Action has not shown that Buteau, Pouschine, or Shwartz, alone or in combination, disclose or suggest all of the claim features to establish a *prima facie* case of obviousness to reject claim 1 under 35 U.S.C. § 103.

Third, none of Buteau, Pouschine, and Shwartz, alone or in combination, disclose or suggest “whereby at least one query language statement is assembled and run against the data source(s) to return the desired data result set,” as recited in claim 1. To reject these claim features, the Action alleges that the FROM command in FIG. 9 is the data source and that FIG. 10 is the desired data result set. Thus, the Action appears to be arguing that Buteau discloses that



at least one query language statement is assembled and run against the FROM command to return the desired data result set. Applicants respectfully disagree.

A FROM command in SQL is not a data source. The FROM command indicates what table(s) to access in a database for retrieving data requested in a query. Hence, the FROM command is used to obtain data from a database, and is not a data source, in contrast with the allegation made in the Action. Thus, the Action has not established that Buteau discloses “whereby at least one query language statement is assembled and run against the data source(s) to return the desired data result set,” as recited in claim 1. The Action does not rely on either Pouschine or Schwartz as disclosing these claim features. Thus, the Action has not shown that Buteau, Pouschine, or Schwartz, alone or in combination, disclose or suggest all of the claim features to establish a *prima facie* case of obviousness to reject claim 1 under 35 U.S.C. § 103.

Fourth, none of Buteau, Pouschine, or Schwartz, alone or in combination, “a process optimization module for evaluating processing options based upon a database schema associated with the data source,” as recited in claim 1. On page 4, the Action admits that Buteau does not disclose these claim features and relies on the following passages from Pouschine as disclosing these claim features:

An incoming client request is routed to an HQL parser 122 which transforms the HQL query from its textual form into an internal representation. After the internal representation of the query is made, the calculation engine 18 looks in the query results cache 124 to see if the query (or any portion of it) can be retrieved from the cache in order to save processing time.

A Domain Modeling Rule Set 126 receives input from both the model 50 and the schema 104, and provides input to the rule evaluator 128, which then communicates with the execution plan 130 and the query engine 132. The query engine 132 creates SQL queries from HQL queries and optimizes these SQL queries by combining them (whenever possible) and also optimizes the performance of the calculation engine 18 by performing

as many calculations as possible with SQL statements executed by the database. (See Pouschine, col. 15, ll. 51-66)

This is followed by inputting the execution tree with rules to the query engine, generating an optimized execution tree from the query engine, inputting the optimized execution tree to the evaluator, and communicating between the evaluator and any of a number of data reference devices. An execution tree with results is generated, the query results are packaged and the results displayed in an output device. (See Pouschine, col. 5, ll. 1-5)

Although the Pouschine reference briefly alludes to the execution tree being optimized, the disclosure is very limited. Other than combining the SQL queries whenever possible, the Pouschine reference does not teach or suggest any method for process optimization. Nor does Pouschine disclose “evaluating processing options.” Thus, the Action has not established that Pouschine discloses “a process optimization module for evaluating processing options based upon a database schema associated with the data source,” as recited in claim 1. The Action does not rely on either Buteau or Shwartz as disclosing these claim features. Thus, the Action has not shown that Buteau, Pouschine, or Shwartz, alone or in combination, disclose or suggest all of the claim features to establish a *prima facie* case of obviousness to reject claim 1 under 35 U.S.C. § 103.

Fifth, none of Buteau, Pouschine, or Shwartz, alone or in combination, disclose “an intermediate data processing method module for evaluating a plurality of methods for generating intermediate data sets within the data source(s),” as recited in claim 1. The Action admits that neither Buteau nor Pouschine disclose these claim features, and relies on Shwartz. A close reading of the Shwartz reference, however, reveals otherwise.

Shwartz does not deal with process optimization at all. The primary and only concern of Shwartz is to prohibit the selection of semantically incorrect query parameters. See Title and

Abstract of Shwartz. Therefore, Shwartz only distinguishes two types of queries, those that are semantically correct versus those that are semantically incorrect. Shwartz does not improve or optimize the efficiency of the query structure by evaluating multiple process options or multiple methods for generating intermediate data sets. Indeed, the text of the Shwartz reference does not even include such terms as “optimize,” “evaluate,” “efficient,” or variations thereof.

The intermediate query language referred to in Shwartz is completely different from the “intermediate data sets” as recited in claim 1. Shwartz’s intermediate query language is a translation of the user’s query input from a form of menu selections to a form of easy-to-understand sentences. See Shwartz, col. 9, ll. 45-47. In other words, Shwartz’s intermediate query language is no more than an alternative presentation of the user input. In the present application, the “intermediate data sets” refer generally to data calculated or otherwise generated for the purpose of returning the desired data set. See, for example, pages 15-17 for a description of the intermediate table selection module and the intermediate table method module. Unlike Shwartz’s intermediate query language, the intermediate data sets in the present application are not user inputs, but data generated *in response to* user inputs.

In view of the foregoing, the Action has not properly established a *prima facie* case of obviousness to reject claim 1 under 35 U.S.C. § 103(a) since the Action has not shown that Buteau, Pouschine, and Shwartz, alone or in combination, disclose all of the features recited in claim 1. Accordingly, claim 1 is believed to be in condition for allowance and allowance thereof is respectfully requested.

Claims 3, and 6-9, which depend from claim 1, also are believed to be in condition for allowance due to their dependence on an allowable claim and allowance thereof is respectfully requested.

B. Response to the Rejection of Claims 10 and 21

Claim 10 is allowable for reasons analogous to those given in support of claim 1 and allowance thereof is respectfully requested.

Claims 15-18, which depend from claim 10, also are in condition for allowance due to their dependence on an allowable claim and allowance thereof is respectfully requested.

Claim 21 is allowable for reasons analogous to those given in support of claim 1 and allowance thereof is respectfully requested.

II. On pages 6-7, the Action rejects claims 2, 5, 11, and 14 under 35 U.S.C. § 103 as allegedly being unpatentable over, Buteau, Pouschine, and Shwartz, in further view of U.S. Patent No. 6,574,623 to Leung (hereinafter "Leung").

Based on the comments above, the basis for rejecting dependent claims 2, 5, 11 and 14 is moot.

Accordingly, claims 2, 5, 11, and 14, which respectively depend from allowable claims 1 and 10, also are in condition for allowance due to their dependence on an allowable claim and allowance thereof is respectfully requested.

**CONCLUSION**

Since the cited references, taken either singly or in combination, fail to teach or suggest the combinations set forth in the pending claims, and further fail to provide any motivation or suggestion of the desirability of modifying the structures or methods to arrive at the claimed combinations, Applicants submit that the pending claims are allowable over the cited references. Accordingly, Applicants respectfully request that the Examiner withdraw the rejections, allow the pending claims, and pass the application to issue.

If the Examiner believes that a telephone conference or interview would advance prosecution of this application in any manner, the undersigned stands ready to conduct such a conference at the convenience of the Examiner.


If there are any fees due which are not enclosed herewith, including any fees required for extension of time under 37 C.F.R. §1.136, please charge such fees to our Deposit Account No. 50-0206.

Respectfully submitted,

HUNTON & WILLIAMS LLP

Dated: July 27, 2006  
Hunton & Williams, L.L.P.  
Intellectual Property Department  
1900 K Street, N.W.  
Suite 1200  
Washington, D.C. 20006-1109  
(202) 955-1500 (telephone)  
(202) 778-2201 (facsimile)

By:

  
\_\_\_\_\_  
Brian M. Buroker  
Registration No. 39,125